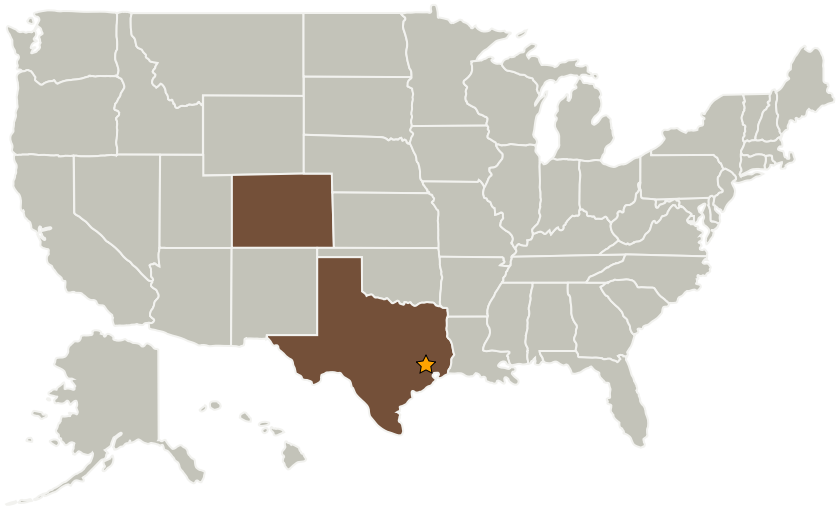
Ultraminiature, Micropower Multipurpose Display, Phase I

Completed Technology Project (2004 - 2004)

Project Introduction

High information content electronic displays remain the most difficult element of the human-machine interface to effectively miniaturize. Mobile applications need a high-definition display small enough to variously be comfortably worn, easily integrated into crowded cockpits, or fit into spacecraft workspaces? environments where even current LCD flat panels, especially when their power sources and waste heat are considered, are much too large. In particular, NASA would benefit from: high-resolution displays worn inside the space suit to enhance EVA productivity, wide-field stereo displays for robotic teleoperators, head-up displays (HUD) for spacecraft and vehicle guidance, and lightweight low-power displays for long-duration space habitats. We propose here to develop microdisplay modules that are radically smaller, radically brighter, and have radically lower power consumption than previously available technology. These modules will enable all the use modes shown in Figure 1. The new display electronic architectures and pixel designs, novel folded reflective viewing optics, and efficient LED illuminators to be developed here will extend our proven low-cost commercial display platform to meet these higher resolution and performance requirements, while enabling private-sector electronic viewfinder (EVF) and micro-projector applications with potential annual revenues exceeding $50 million.

Primary U.S. Work Locations and Key Partners



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Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Center / Facility:

Johnson Space Center (JSC)

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

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Organizations Performing Work	Role	Type	Location
★Johnson Space Center(JSC)	Lead Organization	NASA Center	Houston, Texas
Displaytech, Inc.	Supporting Organization	Industry	Longmont, Colorado

Primary U.S. Work Locations	
Colorado	Texas

Project Management

Program Director:

Jason L Kessler

Program Manager:

Carlos Torrez

Principal Investigator:

Mark A Handschy

Technology Areas

Primary:

- TX06 Human Health, Life Support, and Habitation Systems
  - TX06.2 Extravehicular Activity Systems
    - TX06.2.3 Informatics and Decision Support Systems